

**Amended Specification, including Amended Claims (Red Line Version)**

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TITLE OF THE INVENTION

MATTRESS WITH INDEPENDENT AND DETACHABLE PARTS

CROSS REFERENCE TO RELATED APPLICATION (Not Applicable)

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STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT (Not Applicable)

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THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT (Not Applicable)INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (Not Applicable)

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BACKGROUND OF THE INVENTIONINVENTION PURPOSE-Field of the Invention

20 This invention makes reference to a new type of mattress, which consists of a base, some joining means and a plurality of independent and elastic parts that are detachable and interchangeable to support the body.

INVENTION BACKGROUND Description of the Related Art

25 In today's market, there are numerous types of mattresses that guarantee the human body's enjoyment of a beneficial rest but also need to provide the function of a good support, being neither too soft nor too hard. The main varieties are the following:

- 30 - Wool Mattress: nowadays it's rarely produced due to the wool being replaced by new materials. This type of mattress has the disadvantage of the wool becoming matted with use, needing backcombing every two or three years to regain consistency. Furthermore, the professional mattress makers nowadays are very scarce.

- 5      - Spring Mattress: consisting of stainless steel springs, which can be bi-conical (the top and bottom hairsprings are larger than the main ones) or cylindrical (the hairsprings are equal in diameter), and are usually isolated to avoid any noises. On each side of the hairsprings the filling cavity carries a layer of horsehair, sisal or felt; followed by a layer of cotton, wool or synthetic fibres, which at the same time carries a sleeve, all closed together by a cover. These mattresses are comfortable and solid.
- 10      - Synthetic Latex Mattress: the material is a chemical regeneration of natural latex. These mattresses have one flat surface and another surface full of cells that favour air circulation. They are very hygienic but deteriorate when exposed to daylight without their original cover.
- 15      - Polyester Mattress: the density for the production of polyester should not be less than  $25 \text{ kg/m}^3$ ; the softness of the mattresses foam depends entirely of this density. Given that the rules are not always respected, this type of material has acquired an unmerited bad reputation. Before purchasing, the buyer should demand the specification of the density of foam utilized; good quality should also have a minimum of 10 cm.
- 20      All the types of mattresses described before have the inconvenience that the main piece, the resting base is not detachable due to it being manufactured as a unique part; on the other hand, all of these mattresses offer a continuous flat surface on the area where the body is supported, however, no matter how elastic it is, it will never
- 25      entirely adapt to the body.

#### DESCRIPTION BRIEF SUMMARY OF THE INVENTION

30      This invention consists of a mattress that is composed of a base and a variety of independent parts which are detachable from the base to support the body. The base is joined to such independent and detachable parts by means of detachable joints, specifically adherent fabric of a Velcro hook and loop fasteners type or similar, that

35      allow such independent parts to be taken out, integrated or exchanged with different or similar ones and consequently substituted by new parts when these are damaged or in very bad condition.

The adherent fabric which is integrated to the base as a part of a joining means like Velcro hook and loop fasteners or similar, can cover the entire upper surface or can partially cover it when used as continuous or broken strips, although it should be noted that, for the purpose of the invention, such strips need to be placed in a quantity enough to be able to place the independent and detachable parts, whatever their shape or dimension, in any part of said upper surface of such base. The independent and detachable parts are provided with a corresponding and complimentary fabric on the bottom part to complete the joining means of Velcro hook and loop fasteners type or similar.

Apart from its use as a conventional resting element, this mattress is especially suitable for people during hospital treatment, particularly, for people that have suffered any type of fracture and/or injury that requires the patient to remain in bed or in the same position. Since the parts mentioned are detachable, the surface of the mattress under the fractured zone or injury can be endowed of independent parts and of any convenient shapes and reduced dimensions than the rest of the independent parts of the mattress with the sole purpose of not forcing the affected part of the patients body and therefore permitting the pressure of the mattress to be correct and allowing the recovery of the affected part. This includes, of course, the case in which an area of the mattress can have no pieces at all.

The base of the mattress can have any kind of shape and be fabricated of any kind of material, elastic or semi-rigid and its dimensions can be variable according to its use and finality. An appropriate use of these variables allows to adapt the setting-up of this mattress to fit adult people or even children, and by extension, can be applicable to the manufacturing of cushions, seats and backing including those of vehicles, armrests, footrests, pillows, etc.

The independent parts can be obtained by lengthways and transversely cuts of a traditional mattress or by means of an independent manufacture for each type of part; its form can be prismatic, cylindrical, conical or pyramidal trunk or any other type that can deform elastically when submitted to a perpendicular or slightly inclined load regarding the plan of the mattress base; its section can be square, circular, elliptical, polygonal or of any other form; its height can vary according to the needs of the user

or patient; the material composition of the parts will preferably be made out of natural or synthetic latex, even though any other adequate and elastic material can be used for the mattresses. Due to the simplicity of the mattresses design and the features of its independent and detachable parts, these can be assembled over the same base of independent parts of different shapes, sections, heights and materials. This ultimately means that the disposition of the independent and detachable parts over the base of the mattress does not have to be on reticule files and parallel columns but instead in whichever form, depending on the placement of each part exclusively of the convenient placement at a given point depending on the needs of the body, particularly of the body of hospitalised patients.

This type of mattress which is composed of independent parts favours the ventilation of the patient's body by circulating air, avoiding the multiple inconveniences of the classic mattresses. It also favours the cellular regeneration due to the massaging provided by the plurality of the independent parts. It also avoids the formation of wounds produced by the friction between the skin and a hard surface.

The independent parts are separated by variable separations that can be controlled as desired without any limitation in dimension of such separations. This is due to being the main objective of the invention to provide independent and detachable parts so they can be easily joined or extracted from the base at any given place. Such separations are chosen according to the needs of the user or the injury that would need to be treated; if necessary, some of the independent parts can be removed, for example, with certain wounds so they won't be in direct contact with the mattress.

When this mattress is used for children or babies, the independent parts are of a smaller size; the space of separation between them can avoid the well known suffocation produced by the mattress in contact with the respiratory tract of children due to the mattress being of great help for breathing. Parts with a greater height than the ones mentioned before can also be provided in the areas of the edge of the mattress so these can act as a type of barrier to avoid children falling off the bed.

All of the parts of the mattress (base, independent parts, all of them with their corresponding elements to form the joining means) are capable, as mentioned before, of being manufactured and commercialised at different times and places; they are all

interchangeable and any of them can be substituted or cleaned if they are deteriorated or dirty.

5 The mattress may or may not be covered. In the latter case, the cover can be provided of a lateral latch in all or in a few of the edges, such as a zipper, a pressure latch or similar, that would allow the easy access to its interior in order to extract, insert, interchange or alter the disposition of one or various of the independent and interchangeable parts.

#### 10 BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

For a better comprehension of the invention, as an example, it is included a description of a practical execution of such invention by means of the following drawings:

15 - Fig. 1 is a perspective view of a mattress in which all of the areas of the independent parts are identical and prismatic.

20 - Fig. 2A is a partial side elevational view of a mattress where the invention is provided with identical pyramidal trunk parts that show the separation between one another.

25 - Figures 2B and 2C are elevational views of two subsets of independent parts that are different in shape and dimension, suitable for placement on the edge of the mattress of a baby's crib that would avoid, with the baby's movement, injury by placing its head between the bars of the crib.

30 - Fig. 2D is a side elevational view of the mattress for a baby's crib, where it shows the disposition of the independent parts and some subsets which have been shown in Figs. 2B and 2C.

- Fig. 3A is a side elevational view of a mattress, a cushion, a seat, a backrest, etc., in form of an arch, allowing the formed hollowness to adapt to any part of the body.

35 - Fig. 3B is an enlarged detail of Fig. 3A that allows us to observe the adaptability of the independent parts (4) due to the separation and shape of such parts.

- Fig. 4A is a side elevational view of a mattress, a cushion, a seat, a backrest, etc., in form of an arch allowing the formed convexity to easily adapt to any surrounding area.

5 - Fig. 4B is an enlarged detail of Fig. 4A that allows us to observe the adaptability of the independent parts (4) with different surrounding areas.

10 - Fig. 5 is an elevational view of a mattress of the invention where we can observe the different distortion of the independent parts (4) that are in contact with the body of the person lying down.

#### PREFERRED EMBODIMENT DETAILED DESCRIPTION OF THE INVENTION

15 As a non limiting example, a description of a preferred embodiment of the mattress of the invention is hereinafter disclosed, out of the many possible embodiments pursuant to the contents of the previous description, that also includes not only mattresses but cushions, seats and backrests including those of vehicles, armrests, footrests, pillows and other elements for the everyday rest of adult and children's bodies.

20 In the preferred embodiment shown in Fig. 1, the mattress (1) of the invention shows a base (3) of a parallelepiped shape, the flat upper side of which adheres by conventional known in the art, methods, to a continuous sheet or separate strips of auto adherent fabric of a Velcro hook and loop fasteners type or similar, which will completely cover the top surface of the base (3).

25 The ~~complimentary~~ complementary sheet of the Velcro hook and loop fasteners type or similar joining measure will adhere a plurality of independent parts (4), previously cut according to the size of each independent part (4). In this preferred embodiment, the independent parts (4) are equal in dimension and prismatic shape.

30 The independent parts (4), each provided with said complimentary sheet of Velcro hook and loop fasteners type or similar joining means, are arranged over the base (3) provided with a continuous sheet or separate strips of auto adherent fabric (2) of a Velcro hook and loop fasteners type or similar in a uniformed distribution according to

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a reticule set of perpendicular columns and rows leaving a small and constant separation between the adjacent independent parts (4).

5 The mattress may or may not be covered (1). In the latter case, the cover will be provided of lateral latches in all or some of the sides, such as zippers, pressure latches or other types.

10 This will allow that such independent parts (4) can be individually extracted, inserted or changed by different or similar ones and consequently substituted by new ones when these are damaged or deteriorated.

15 It is clear that the invention described and accompanied of a preferred embodiment can be object of obvious variations for people who are experts in the matter as far as shapes, dimensions and materials used, these do not have to be viewed as modifications of the invention or of the following claims.